

AIS

Aquatic Invasive Species

EUROPEAN FROG-BIT



Frog-bit
Photo by Erich Haber

COMMON NAME: European Frog-Bit

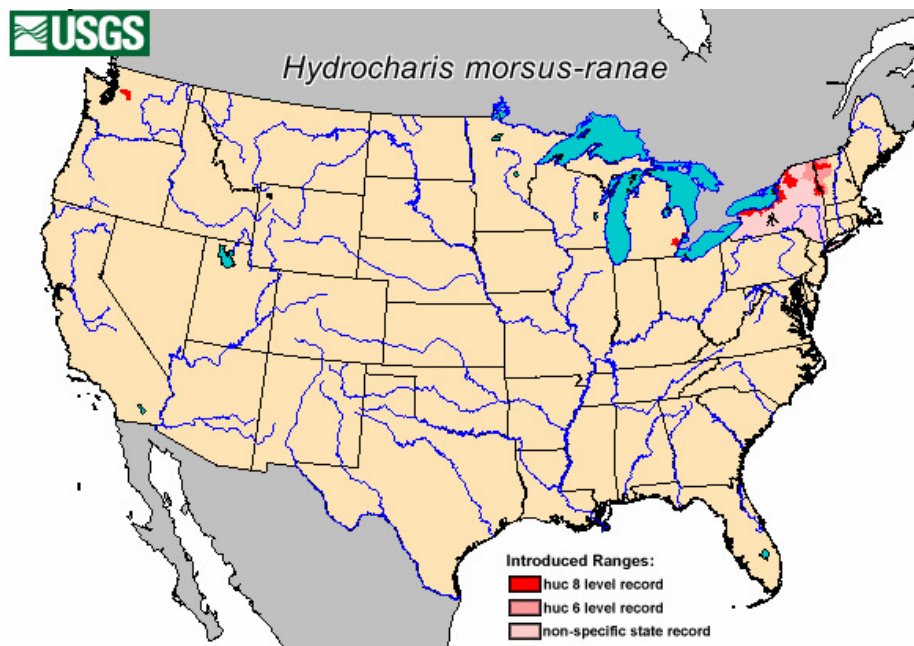
SCIENTIFIC NAME: *Hydrocharis morsus-ranae* L.

The European frog-bit is in the frog-bit family, Hydrocharitaceae. Linnaeus first described European frog-bit in 1753.

DISTRIBUTION:

European frog-bit is native to Europe and Asia. In North America, the species has been found in the wild in Washington, Michigan, New York, Vermont and Ontario, Canada.

Indiana: Although not currently detected in Indiana waters, European frog-bit is on our states Aquatic Nuisance Species watch list.



DESCRIPTION: European frog-bit has 1-2 inch wide heart-shaped, leathery leaves. The upper side of the leaf is green with the underside being dark purplish-red. They have an extensive root system that does not anchor it to the substrate. It is a free-floating plant with leaves that sit on the water's surface. Frog-bit produces a single white flower that is 1.5 cm wide and it has three petals.

LIFE CYCLE BIOLOGY AND LIFE HISTORY: European frog-bit occurs in open water marshes, standing water of swamps, and backwaters. It prefers calcium rich water with no wave action. It is a dioecious plant, meaning that the male and female flowers occur on different plants. Most populations are dominated by one sex, therefore it seems that sexual reproduction is of little importance. The European frog-bit mainly reproduces by turions which are buds that break off from the plant and sink to the bottom to overwinter. In the spring they rise to the surface and begin to grow. It is estimated that one plant may produce 100 turions. The root system of the European frog-bit is well developed but it rarely anchors to the bottom, rather it will become tangled with other vegetation and with other frog-bit's roots creating dense masses. The underside of a frog-bit leaf is spongy, which allows it to float on the water's surface. In the fall this plant decomposes and falls to the bottom of the body of water.



European frog-bit forming a dense mat.
Photo by Erich Haber

PATHWAYS/HISTORY: It is believed that European frog-bit came to the United States via Canada. In the 1930's this plant was being cultivated and subsequently escaped into Canada's open waters. It is then believed that the plant hitchhiked on boats and boat trailers into U.S. waters. The first record of European frog-bit in the United States was in 1974 from northern New York State. It was not until 1993 when it was reported in another state, Vermont. It seemed to have remained isolated in Lake Champlain until 1999 when European frog-bit started showing up in other Vermont waters. In 2000, Michigan reported two occurrences of European frog-bit invading bodies of water in the southeastern part of the state. The most recent state to report having European frog-bit was Washington in 2002.

DISPERSAL/SPREAD: European frog-bit is a popular water garden plant. As this invasive plant takes over small artificial ponds, the owners may opt to dispose of the plant in natural waterways. Once the plant becomes established in the wild, the movement of frog-bit to new bodies of water is likely a result of the plant hitchhiking on boats, trailers, or other equipment. Since this species is not rooted to the bottom, water currents can move the plant around as well.

RISKS/IMPACTS: European frog-bit creates dense mats of vegetation once it becomes established and thus prevents light and nutrients from reaching submerged vegetation. The cover value for aquatic animals greatly declines in areas that are covered with European frog-bit due to the fact that the submerged vegetation is unable to grow. European frog-bit's reproductive style gives it an advantage over native plants. It will displace native vegetation resulting in reduced biodiversity of an area. When large masses of frog-bit die in the fall, depleted dissolved oxygen is possible. Low oxygen levels can cause fish and other organisms to die causing declines in native animal populations. Dense areas of European frog-bit can restrict angling, boating, swimming, and other recreational uses.

MANAGEMENT/PREVENTION: There are few ways found to control European frog-bit. It seems that the only solution right now is removal by hand or other harvesting methods; however, this is only a temporary solution. Currently the states of Maine, New Hampshire, Vermont, and Washington ban the importation of this nuisance plant.

The best means of control is to prevent European frog-bit from becoming established in the state! Like all invasive species, the key to preventing their spread is knowledge! You can help by practicing a few good techniques to stop the spread of any aquatic invasive plant.

- ✓ Rinse any mud or debris from equipment and wading gear and drain any water from boats before leaving a launch area.
- ✓ Remove all plant fragments from the boat, propeller, and boat trailer. The transportation of plant material on boats, trailers, and in livewells is the main introduction route to new lakes and rivers.
- ✓ Do not release aquarium or water garden plants into the wild, rather seal them in a plastic bag and dispose in the trash.
- ✓ Consider using plants native to Indiana in aquariums and water gardens.
- ✓ Immediately report the sighting of European frog-bit to the Indiana Department of Natural Resources, Division of Fish and Wildlife and save some plant material for identity verification.
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